POLYMORPHISMS IN THE FCER1A GENE


```
AAACAGAAGA ATTAGTAAAG GAATCCTGGA GAAAGCCCCT GCTGTGTATT
TAAAGGAGAA AGGGAGATCA TGTTGGGAAA TTATAATATT AAAAGTAAAC      100
AAAAGCTAGG AAGTAAAATA AAATAAATTA TATGGCCTAG ATCCCCATAA
GTAATGGTTT AACTTCTGCC TTCCTGTGTT CTGAGCCAGA TTAGGGCACA      200
GTAGAGAAAG AGGAGTCTCT GAAAATGTTT CCAATTTCGC TGGTCAGACA
GCGGATCATC AGTGAATCAG ATGAAAATTT GTGGATTTAT GCACTAACTG      300
ATCAGCAGGA AATTAAACAA GAAAAGCGTT GGTAGCTCTG GTGAATCCCA
AAAGAATTTG GCAGTTGCTA GCCATGCTCC TGAATATGTA TAAACAGTAC      400
ATCATATGAC TAAGAGTTTG ACTTAGGGGT TAGATTTTAT GTGTTTGAAC
CCCAAATTAG TTATTTAATA GTTGGCACCC CAAAACAAGT TACTTAACCT      500
CACTAAGATT CAGTTTTCCT GTTTATAAAA TGTAGATAGT GATAGTATGT
ACTTTATAGG ATTATTGTGA AAAATAAATG AAATATCAGA TTTATTTAGG      600
                                  G
ATAACACCTG GCATATGTTT GGTATTCAGT AATTAGTTGC TGCTGTTTTA
TTCTGCTCTC CCTTGCATCC CACTTTTCTA AGTTGTAAAC TAAATAGTTG      700
      C
TACACAGATT GACAGATTAA GAAAGGCTTG TGATTGTGCT AGACCTATGC
CTCTCTCTCA CCAGATTCCA GGTGTATATG TGGAGGTGGG ATAGGGAGTG      800
GAGTAAGTGG GTAAATATTA AATTGCCCAG TTGGGCACCA TCCTGAATAT
TATCTCTAAA GAAAGAAGCA AAACCAGGCA CAGCTGATGG GTTAACCAGA      900
TATGATACAG AAAACATTTC CTTCTGCTTT TTGGTTTTAA GCCTATATTT
     C      T
GAAGCCTTAG ATCTCTCCAG CACAGTAAGC ACCAGGAGTC CATGAAGAAG     1000
ATGGCTCCTG CCATGGAATC CCCTACTCTA CTGTGTGTAG CCTTACTGTT
      [exon 2: 1001..
CTTCGGTAAG TAGAGATTCA ATTACCCCTC CCAGGGAGGC CCAAATGAAT     1100
                        A
               ..1055]
TTGGGGAGCA GCTGGGGTAG GAACCTTTAC TGTGGGTGGT GACTTTTTCT
AGGACATGTG CAAACTATTG GGCATTTCCC AGGGACTCTG TAGTGGAGCC     1200
AAGCTAGAAA GCAGAGGCAA GTGGGCTGAG CAACACCTAA GGAGGAAGCC
AGACTGAAAG CTTGGTTCCT TGCATTTGCT CTGGCATCTT CCAGAGTGCA     1300
AATTTCCTAC CAAGGTAATG AGGGTAGAGG AGAGAAAGAA GCTCTTTCTT
CCCCTGATTC TCATTCCTGA AAAGACGGTT GGTCCTTAAA ATTCCATGGA     1400
TGTAGATCTT ATCCCCACAC CCAGATTCTA GTCCTCTGGA GATAAAGAAG
ACTGCTGGAC ACTAATGTAT CCTCTCTGGA CTTTTGCAGC TCCAGATGGC     1500
           C      A
      [exon 3: 1490..
GTGTTAGCAG GTGAGTCCTC TGTTCTTGTT CCCTTGGTGT ATCAACATGT
              ..1510]
CTGGGCATTG CTTTCCTCTC ACTATTTTCT TCGTCCCATC ACTTCTGCTT     1600
TCTAATGAGC ATGAATCTGT TCCTTGGCCA GACTACTTTC CCTCTCCACC
        T
TTGCCTTGTC TTTCTTTTTT TCCCTGATTC ATTGCATTCT CTCAAGTCAT     1700
TCTCTCCTCT GTTTTAGTCA ATAACCATGT CTGTTGCACA TATACATGTC
TCATTCTCTC TCCTAGACAC TTTGGCATGA TCTCGCTCAA TAATTACATT     1800
ATTATTATTA TTGCCATTTT ATAATTGAGG ATGCTGAAAC TCAGTGATTT
TCTGGTGGTT ACATGGCTAA GGAACTGGAT TTCAACGTAA GTTCCTTGGA     1900
TCTAAGTCCA GTTCTCTTCT GACTATATCA CCCTTTTGTT ATCACCATGT
ATCTACTTCT TTGGTCTCTG TTCAAATTTG CACTACATCC CCTTGTTCCA     2000
GGAAGCCATT CAAGACTGAC TTTCTTAGTG CCTCTCACTA CTTTCTGGAA
```

FIGURE 1A

```
CTGACATATG TTTTTCACTC TGTATATACT TACAATTAAA TAGTCATAAA     2100
TATTCAGAGC TTGGAGAAAC CTTATATTTC ATCCAGTCCA GTAAATTTAT
CCATCCATAA TTCACTCATT CATTCACATA ATAAATATTT AATGTAACAA     2200
TGGTTGAACA TGGCAGACAG TGTTTCTACC TCAAAAGAGA TTGCAGTCCT
CATTTACAGA TACTGAATTG AAATTAACAG AAGTAGAGTG AGTCAGCTCA     2300
AATCACATAG TGAATTGGTT TCTTTGTTTT TAAATCTCCT GCATATGTGT
CCTGTCTTTC TCCCTGTGTT GGGCGTTCCC TGGGGCACCA ATACTAATTT     2400
CTCCTTCCCC TAGAAATCAA AACAGGGTCT TATCACCAAC AGAATAAGGA
                       G
CAGGTTGACC ACTGATTGTC AGAATATTGC TTCGTTTGTA CTTTTAAGCC     2500
TAGACAGTTT TCAATGACTT TTTTTCTCTC TACATGTCTT TTCATATTTT
TATCTTCTTG AAGTCCCTCA GAAACCTAAG GTCTCCTTGA ACCCTCCATG     2600
      [exon 4: 2564..
GAATAGAATA TTTAAAGGAG AGAATGTGAC TCTTACATGT AATGGGAACA
ATTTCTTTGA AGTCAGTTCC ACCAAATGGT TCCACAATGG CAGCCTTTCA     2700
GAAGAGACAA ATTCAAGTTT GAATATTGTG AATGCCAAAT TTGAAGACAG
                                        G
TGGAGAATAC AAATGTCAGC ACCAACAAGT TAATGAGAGT GAACCTGTGT     2800
                                         A
ACCTGGAAGT CTTCAGTGGT AAGTTCCAGG GATATGGAAA TACAGATCTC
                ..2818]
TCATGTGAGG GATGGCTCAT CTGAAGATGG GAAAAAACAG GTTATTCCAA     2900
GGGTTAGGAC ACCAGAGTGG GATTCAAGGC CTCTCATTTT TAAGACCCCT
                                    C
GCATTGGCTG GGCACAGTGG CTCACGCCTG TAATCCCAGC ACTTTGGGAG     3000
                                                     A
GCTGAGGCAG GTGGATCACG AGGTCAGGAG ATCGAGACCA TCCGGCTAAC
                                               A
ATGGTGAAAC CCCATCTCTG CTAAAAAATA TATATATATA AAATTAGCCG     3100
GGCGTAGTGG TGGGCACCTG TAGTCCCAGG TACTCGGGAG GCTGAGGCAG
GAGAATGGTG TGAACCCAGG AGGTGGAGGT TGCAGTGAGC TGAGATCACG     3200
CCACTGCCCT CCAGCCTGGG CTACAGAGCA AGACTCCGTC TCAAAAAATA
AATAAATAAA TAAAAAAGAC CCCTGCATCT CTTTTCTTCT ACCCCCTTCC     3300
CTTTTGATTA CTTGTATGCC TTCTTTCAAT ATTCTAGTCA TCTCTCAATA
TTATTCCTCC ACCCTATTTT CCTCTATCTT TTCTGCCTAG ATTCAGGTAT     3400
ATATTATGTG GTCAAACAGC ATGACATATA TGTGAACATT TCAAAGAGCT
GTGTATCTGG AATAGGATCA AAAGGTTTGA CTTAAAGTTT TGCTCTGCAT     3500
AATCCATATG GCAGGACCTG AATATTAGGT TGTACTCTTC GTTATGAAAC
ATATCTGGGT ACATTTCCTT ATGTCCTCTG TTGTTACTTA AGAACACATA     3600
TTTCATGCTT GTTTCATTTT TATCACTCCT ACTGCCAACA AATAGCATAG
CATGCTTAGG CACATGTGGC TTAATTAGCA AATGTTGAAT AAACAAATTA     3700
ATGATTTTGA ATAGTGACCA ATAGGTCTCT TTTATACTCT ATATTTTTCT
CTTGAGTGAA AAAAAATGTT TCAACCTCCA TATGTAAATT CCAAACACAA     3800
ACTAAAGCAA TGTAGAATAG CTTCTTTATT CCCTGGAGTA GGTTCTAGAG
AAGTCCTAAA GGATTGGTCC TAAATTAATT ATGCTTATTA TGCTAGCGAT     3900
ATTTCCTTTC AAAATTCTCC TTTAATGAAT GCTTTTTAAT TTTTACAAAA
GCATTAACCA TAGAATGTGA TTCTTGTCTT TCACTGACTC ATTAGTGACA     4000
AATATTTGTT GAGTACCTAC CAACTCCTAA GTATTGCTAC CAACTCCTAA
ATACTGTGTT GGGCATTCAG AATAGAATGT AGAACTAGAC AGGGTCCCTG     4100
ACTTCTTGGA GCACAGAGCA GTATGGGAAG AGGACATTAA ATAAAGAATT
ACATAAGTAA TTAATTTAAA TTATACATGT TTTGAAGAAG TTTTTTTTTG     4200
ACAACTATAA TTAACACTAG AACTGGGAAG TTTCTATAAG GTAAGAGAGG
ACAAAATAGA CACTCTCCTA AGCTAAAATT CCCAAGAAAG ACTGTTTATT     4300
TTCCCCTAAC TAACTAGAAC TAGCAACAGA AGATCTGAAA GGAATTCTGG
```

FIGURE 1B

CTTTCAAGTG TTCCATGTAT GGACTCATCA GGGAGGTCCG AGAGGCTTTG 4400
TGGCCCCAGA CTGACTTTTC AGGAGGGGAA AGGATTTATC AATACACAAG
ACAGGCTCTA AGCATTATTT TGTGCCCTTT AAAAATCCAC TTTATGAGCC 4500
AAAAAGTGAG TTAATGATAA TTCATAGTTT CTGACACATG CTCTATGCGT
GGCTCTCTTT TCTCTATTCA TTCTCTCTCT CTTCATTTAT TGTTAAATAA 4600
A
ATAATGTAAT GAATGTTCTT CAGACTGGCT GCTCCTTCAG GCCTCTGCTG
[exon 5: 4624..
AGGTGGTGAT GGAGGGCCAG CCCCTCTTCC TCAGGTGCCA TGGTTGGAGG 4700
AACTGGGATG TGTACAAGGT GATCTATTAT AAGGATGGTG AAGCTCTCAA
GTACTGGTAT GAGAACCACA ACATCTCCAT TACAAATGCC ACAGTTGAAG 4800
ACAGTGGAAC CTACTACTGT ACGGGCAAAG TGTGGCAGCT GGACTATGAG
T
TCTGAGCCCC TCAACATTAC TGTAATAAAA GGTGAGTTGG TAAAGGAAAG 4900
..4881]
GAAAAGCATC CATAGCAGGG GAAGGAAGAG AGAACTTCTG AGCCTGAGCA
GTTGCAGCTT GTAGAAGGGG GGCACCTGTG ATACACTGGA AAGCCTACCA 5000
T
GACTTGCAAT GAGGAGACCT GGGTGATAGT ATATATCTCA ATCTCTGTTT
CAAAGCCTTG ACTTGTTAAA TGGTGATAGT AATACCTGCT TGCACTATGA 5100
C
AATTTTTATG AAGATTAATG TGGTAATATT TGTGAAATGA CTTTGTAAAC
TGTTAAGCAC TACCCAAGCA TAACAGATTG TGATTACTAT TTTGATCTCA 5200
AAGTCATCTG TTGCTCCTGG GGGAACACTT ATATTTATCA AATTGAAAAA
AAGTTTCAAA GTTGAATGAA GAAAGGATAT AAAGAGCTTG AGGAGCCCAT 5300
TCCAGCTTAG GAGGGCTGGG AAAGGAAACC AGCAAGTCAG TAAGCTGTGT
GCCTGTGTAT TGAGGGAGGA GGGAATGGAC TTGATATGGA GAGGGTAGGG 5400
AGGTGGACTG CCTCTATGGC CTGTAAGAAA AACTGCTCTC TCCAAACTCT
TTATAAGAGA GGGAGCCTGT GAAGTATTCA CTTTTGAAGG AGAAAGTTAG 5500
ACTTTTCCTT CACACACTTT GTACATAATA ATGTTTAAAA AAGCATGAGG
TCAAAATACA TAATTAAGTC CTAGCAGTTC TCTGTTAACT AATTTGAGAC 5600
TGAAGTGCTA TGTACTTGTC TCTAGGCTTC CAGTATCTTC ATCTGTAAAA
CAGAATATTT GGTCTAGATT CCATTAGAAT CATTTGATAA CTTAAAAAAT 5700
ATATTGATGC TCATGTCTCA TTTCTTGAGA TTCTGATTTA ATTGGTTTGG
GGTGCAGCCT GGGTATACGT ATTTTTCATA GGTCTTTCAC ATAATGGTAA 5800
TGGGTAGCCA ATATTGAGAA TCACTTGTCT AGGTGATCTT TAAATGATTT
CTGGATGTAA TATTCTGAGG CTCTATAATT TGAGACTAAT CACAAAAATC 5900
GGTACAGTTT ATAAACAGAC TAACAGAACC ACAAAATAAT AGAATTGGAA
GGCAATTTAA CTAGTGCAAT TTCTTCATTT TGCCTAACAG GCATGTAAGA 6000
AATGATGATT GATTGAGTAA TAGGCATTGA TGACCCCTGT CCTCACTTTG
TCCCCTTTCC ACCCCTTAAT TATATGTGAA TTCTGGTCTT GTCATTTCGA 6100
ATAAGGGGTT TATCTTTCCT ATTGTCTTCC CCTCTGGGCA CGGCACACTG
GCTACTGGAG TTAAGAGGAA ATGCTTAGGA CTCCCTGTGG CTCCAGGGAG 6200
CACCAACAGA GCAACTCAAC CTAGTGTTAA TCTGAGTGTT TTCTCTGTGC
TTCTGGATGC CACATCACGC TAAAAATGAA GGACAAAGCT TGGTCTTTCT 6300
CTTAGGGAGG ATGAAACTCT GAACCTCATT TTTCAGTTCC CAAGATGAAT
TATGTTTCTC ATTGCATCTG TGTTCCACTA CAGCTCCGCG TGAGAAGTAC 6400
[exon 6: 6384..
TGGCTACAAT TTTTTATCCC ATTGTTGGTG GTGATTCTGT TTGCTGTGGA
CACAGGATTA TTTATCTCAA CTCAGCAGCA GGTCACATTT CTCTTGAAGA 6500
TTAAGAGAAC CAGGAAAGGC TTCAGACTTC TGAACCCACA TCCTAAGCCA
A
AACCCCAAAA ACAACTGATA TAATTACTCA AGAAATATTT GCAACATTAG 6600
..6568]

FIGURE 1C

```
TTTTTTTCCA GCATCAGCAA TTGCTACTCA ATTGTCAAAC ACAGCTTGCA
                        C                            G
ATATACATAG AAACGTCTGT GCTCAAGGAT TTATAGAAAT GCTTCATTAA    6700
ACTGAGTGAA ACTGGTTAAG TGGCATGTAA TAGTAAGTGC TCAATTAACA
              A
TTGGTTGAAT AAATGAGAGA ATGAATAGAT TCATTTATTA GCATTTGTAA    6800
AAGAGATGTT CAATTTCAAT AAAATAAATA TAAAACCATG TAACAGAATG
CTTCTGAGTA TTCAAGGCTT GCTAGTTTGT TTGTTTGTTT TCTACTAAAG    6900
GCAAGGACCA TGAAGTTCTA GATTGGAAAT GTCCTCTCTT GACTATTGCA
AGTGCGATCT AGGAATGAAA AGACATAGGA GGATGCCAGT GAGGTGGATC    7000
ATTTTTATGC TTCTTCTTCA GCTTACTAAA TATGAACTTT CAGTTCTTGG
CAGAATCAGG GACAGTCTCA AGACATAGGA CTCTCAGGAT GAAGTAGAGT    7100
CCAGGATTCC TCTGTGATTG TTTTGCCCCT CCCAAATTTA TATCTTGAAC
TTATGTCTTG TATCTTTATA CAGCACCTGA ACCAAGCATT TTGGAGAAAT    7200
TCCAGCTAAT AATAATAACC AAAACCTTCG GCTCTGAAAA CAGTCCAGGA
CTGAATAAGA TCTTGGGCAA AAGAACTAGA CAGTTTTGGT TTATTTTCCC    7300
TTTCATTTTA TGTCTTCATC ATAGTCATTG GAGGCTCATT CTTCTTGTCA
TGGAGTAAAT GGGATTAAAG TT                                  7372
```

FIGURE 1D

POLYMORPHISMS IN THE CODING SEQUENCE OF FCER1A

```
ATGGCTCCTG CCATGGAATC CCCTACTCTA CTGTGTGTAG CCTTACTGTT
CTTCGCTCCA GATGGCGTGT TAGCAGTCCC TCAGAAACCT AAGGTCTCCT     100
TGAACCCTCC ATGGAATAGA ATATTTAAAG GAGAGAATGT GACTCTTACA
TGTAATGGGA ACAATTTCTT TGAAGTCAGT TCCACCAAAT GGTTCCACAA     200
TGGCAGCCTT TCAGAAGAGA CAAATTCAAG TTTGAATATT GTGAATGCCA
AATTTGAAGA CAGTGGAGAA TACAAATGTC AGCACCAACA AGTTAATGAG     300
G
AGTGAACCTG TGTACCTGGA AGTCTTCAGT GACTGGCTGC TCCTTCAGGC
 A
CTCTGCTGAG GTGGTGATGG AGGGCCAGCC CCTCTTCCTC AGGTGCCATG     400
GTTGGAGGAA CTGGGATGTG TACAAGGTGA TCTATTATAA GGATGGTGAA
GCTCTCAAGT ACTGGTATGA GAACCACAAC ATCTCCATTA CAAATGCCAC     500
AGTTGAAGAC AGTGGAACCT ACTACTGTAC GGGCAAAGTG TGGCAGCTGG
                                T
ACTATGAGTC TGAGCCCCTC AACATTACTG TAATAAAAGC TCCGCGTGAG     600
AAGTACTGGC TACAATTTTT TATCCCATTG TTGGTGGTGA TTCTGTTTGC
TGTGGACACA GGATTATTTA TCTCAACTCA GCAGCAGGTC ACATTTCTCT     700
TGAAGATTAA GAGAACCAGG AAAGGCTTCA GACTTCTGAA CCCACATCCT
                                           A
AAGCCAAACC CCAAAAACAA CTGA                                 774
```

FIGURE 2

HAPLOTYPES OF THE FCER1A GENE
Chew et al.
Contact: Gisela Field
203-786-3473
SHEET 5 OF 6
Docket No. MWH-0007US
Express Mail No. EL594656953US

ISOFORMS OF THE FCER1A PROTEIN

```
MAPAMESPTL LCVALLFFAP DGVLAVPQKP KVSLNPPWNR IFKGENVTLT
CNGNNFFEVS STKWFHNGSL SEETNSSLNI VNAKFEDSGE YKCQHQQVNE      100
                                    R
SEPVYLEVFS DWLLLQASAE VVMEGQPLFL RCHGWRNWDV YKVIYYKDGE
N
ALKYWYENHN ISITNATVED SGTYYCTGKV WQLDYESEPL NITVIKAPRE      200
                            M
KYWLQFFIPL LVVILFAVDT GLFISTQQQV TFLLKIKRTR KGFRLLNPHP
                                                  K
KPNPKNN                                                     257
```

FIGURE 3